

The Vulnerable Indian One Rupee Coin

Arvind Krishnamurthy, Vijayalakshmi Ramshankar¹

Departments of Surgical Oncology, and ¹Preventive Oncology, Cancer Institute (WIA), Adyar, Chennai, Tamil Nadu, India

ABSTRACT

Coins are the most commonly ingested foreign body encountered in the pediatric population, with a peak incidence between 6 months and 3 years of age. Although some ingested coins may be aspirated, most coins pass through the alimentary tract without causing any complications. Coins in the esophagus causing symptoms require immediate removal. The management of asymptomatic coins has been a perplexing problem to the clinicians for decades. We recently managed an interesting case of an impacted Indian one rupee coin in the esophagus of a 13-year-old girl, by performing a simple yet novel technique, by using a conventional flexible endoscopic biopsy forceps. Further, reviewing the literature we inferred that the rounded, stainless steel Indian one rupee coin with a diameter of 25 mm, by itself seems to be vulnerable for impaction in the esophagus and therefore needs to be promptly addressed even if asymptomatic.

Keywords: Coin, esophageal foreign body, flexible esophagoscopy

Introduction

Coins are the most commonly ingested foreign body encountered in the pediatric population, with a peak incidence between 6 months and 3 years of age.^[1,2] While some ingested coins may be aspirated, most coins pass through the alimentary tract without causing any complications. However, some coins can become impacted and have the potential to cause serious complications such as mediastinitis, empyema, perforation or even cause an aorto-esophageal fistula. Coins in the esophagus causing symptoms require immediate removal. The management of asymptomatic coins has been a perplexing problem to the clinician for decades,^[2] we describe our experience of managing an impacted Indian one rupee coin.

Case Report

A 13-year-old girl was brought to our emergency department by her caregiver, 1 h after ingestion of an Indian one rupee coin. She was asymptomatic at presentation and her clinical examination was unremarkable. A frontal and lateral chest skiagram showed a rounded coin shadow in the upper esophagus, at the level of the aortic arch [Figure 1]. She was

taken up for removal of the coin under propofol sedation after a 12 h period of watchful waiting. A flexible esophagoscope was introduced per-orally and the impacted Indian one rupee coin was visualized in the esophagus at a distance of 24 cm from the incisors. A non-serrated 2.8 mm disposable endoscopic biopsy forceps without a needle was introduced through the working channel of the flexible esophagoscope and the Indian one rupee coin was firmly grasped in between the jaws of the biopsy forceps. The flexible esophagoscope was withdrawn along with the biopsy forceps and the coin was safely removed [Figures 2 and 3]. Patient was counseled and discharged the same day evening.

Discussion

Esophageal foreign body impaction is a serious medical emergency demanding timely recognition and prompt action. The lodgment site for esophageal foreign bodies is said to be influenced by age, foreign body size, type and the duration of ingestion. The common sites of lodging of the coins are at the cricopharynx (70%), at the level of the aortic arch (15%) and at the gastro esophageal junction (15%).

Classic teaching has stressed that ingested coins in the esophagus are aligned in the coronal plane on frontal chest radiographs, whereas aspirated coins in the trachea assume a sagittal orientation. However, a recent case series differs from the classic

Access this article online

Quick Response Code:



Website:
www.jfmpc.com

DOI:
10.4103/2249-4863.123927

Address for correspondence: Dr. Arvind Krishnamurthy,
Department of Surgical Oncology, Cancer Institute (WIA),
38, Sardar Patel Road, Adyar, Chennai - 600 020, Tamil Nadu, India.
E-mail: drarvindkrishnamurthy@yahoo.co.in

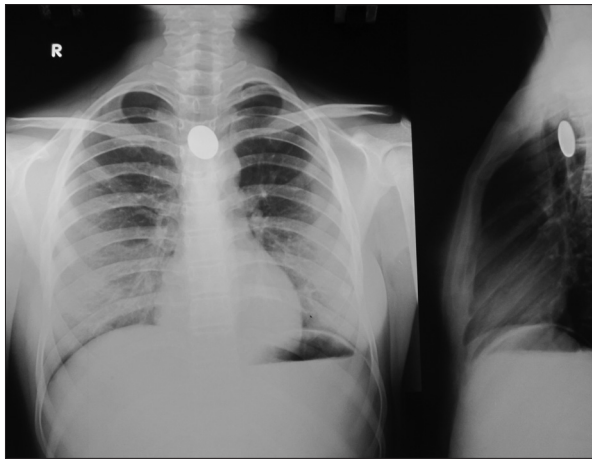


Figure 1: A frontal and lateral chest skiagram showed a rounded coin shadow in the proximal esophagus at the level of the aortic arch

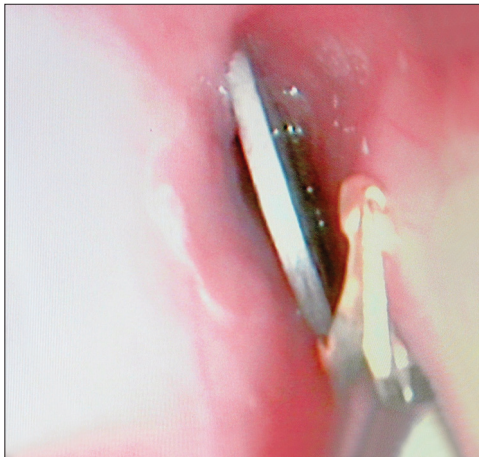


Figure 2: Flexible esophagoscopy showing the biopsy forceps just prior to grasping the Indian one rupee coin lodged in the esophagus, 22 cm from the incisors



Figure 3: The extracted Indian one rupee coin

teaching in stating that a coin seen with a sagittal orientation on a chest radiograph is more likely to be within the esophagus rather than within the trachea.^[3]

It has been reported that coins lodged in the proximal esophagus and those retained for more than 16-24 h are less likely to pass and needs intervention.^[4] In a study pertaining to the impact of the diameter of the coin and its retention, it was reported that most retained coins had a diameter between 23.45 and 26 mm.^[5] The rounded, stainless steel Indian one rupee coin with a diameter of 25 mm, seems to be vulnerable for impaction.^[6]

A variety of management options are available that include endoscopic removal (rigid/flexible) Foley catheter removal, esophageal bougienage, Magill forceps extraction and a wait and watch policy. The best modality of removal of foreign body has been a subject of controversy. The choice of treatment is influenced by many factors, which include, the age of patient, size and shape of the foreign body, anatomical location and the expertise of the treating clinician. Among them the most popular technique of removal of impacted esophageal coins in is by rigid esophagoscopy. This method required general anesthesia with muscle relaxation and is known to be associated with 2-10% risk of perforation during foreign body removal.

Flexible esophagoscopy is a safe and reliable method for removal of impacted foreign bodies throughout the esophagus and can be performed under propofol sedation.^[7] Propofol is a commonly used intravenous anesthetic agent for endoscopic procedures. A variety of instruments such as grasping forceps, retrieval baskets or loops may be used to retrieve foreign bodies, dependent upon the type of object involved. Selection of the appropriate instrument will minimize any risk of the foreign object being released prematurely and causing further trauma. The jaws of a regular biopsy forceps without a needle can be used to firmly grasp and extract the coin as was successfully done in our case.

Conclusion

Impacted coins in the esophagus need to be promptly diagnosed and addressed; a simple chest X-ray is more of less diagnostic of the same. In addition, coins with a diameter between 23.45 and 26 mm seem to be more vulnerable of impaction and therefore needs to be promptly addressed even if asymptomatic. Extraction of impacted coins with the aid of a regular endoscopic biopsy forceps seems to be a safe, effective and attractive option.

References

1. McNeill MB, Sperry SL, Crockett SD, Miller CB, Shaheen NJ, Dellon ES. Epidemiology and management of oesophageal coin impaction in children. *Dig Liver Dis* 2012;44:482-6.
2. Waltzman ML. Management of esophageal coins. *Curr Opin Pediatr* 2006;18:571-4.
3. Connors GP, Chamberlain JM, Ochenschlager DW. Symptoms and spontaneous passage of esophageal coins. *Arch Pediatr Adolesc Med* 1995;149:36-9.

4. Schlesinger AE, Crowe JE. Sagittal orientation of ingested coins in the esophagus in children. *AJR Am J Roentgenol* 2011;196:670-2.
5. Tander B, Yazici M, Rizalar R, Ariturk E, Ayyildiz SH, Bernay F. Coin ingestion in children: Which size is more risky? *J Laparoendosc Adv Surg Tech A* 2009;19:241-3.
6. Baral BK, Joshi RR, Bhattarai BK, Sewal RB. Removal of coin from upper esophageal tract in children with Magill's forceps under propofol sedation. *Nepal Med Coll J* 2010;12:38-41.
7. Li ZS, Sun ZX, Zou DW, Xu GM, Wu RP, Liao Z. Endoscopic management of foreign bodies in the upper-GI tract: Experience with 1088 cases in China. *Gastrointest Endosc* 2006;64:485-92.

How to cite this article: Krishnamurthy A, Ramshankar V. The vulnerable Indian one rupee coin. *J Fam Med Primary Care* 2013;2:381-3.

Source of Support: Nil. **Conflict of Interest:** None declared.